A-12

DISTRICT #4

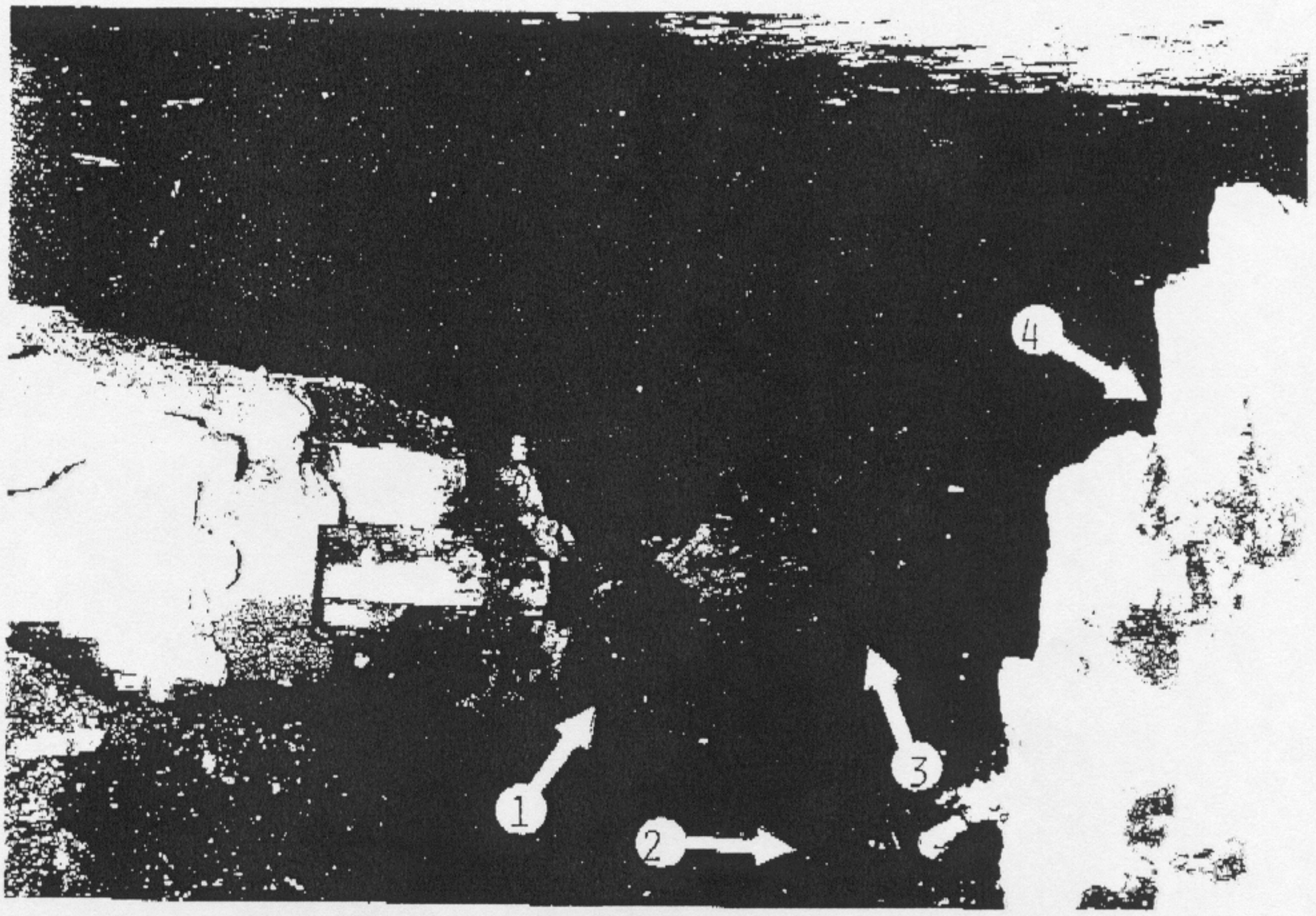
REPORT OF INVESTIGATION
(UNDERGROUND COAL MINE)

FATAL BUMP ACCIDENT

Olga Mine (ID No. 46-01407)
Olga Coal Company
Coalwood, McDowell County, West Virginia

December 8, 1978

AUBREY T. CASTANON
COAL MINE INSPECTOR



Legend:

1 and 2. The continuous miner cutting head was torn off in the bump.

3. Coal displaced by the bump in the face of the pillar split.

4. Rib was shattered by bump.

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Abstract of Investigation

Title of Investigation: Fatal Bump Accident

Report Release Date: March 19, 1979

Mine: Olga Mine

Mine I.D. Number: 46-01407

Company: Olga Coal Company

Town, County, State: Coalwood, McDowell County, West Virginia

Author(s): Aubrey T. Castanon

Originating Office - Mine Safety and Health Administration Coal Mine Health and Safety District 4

Address: P. O. Box 112
Mount Hope, West Virginia 25880

Mine Information

Daily Production	2,812
Surface Employment	32
Underground Employment	438
Name of Coalbed	Pocahontas No. 4
Thickness of Coalbed	84 inches

Last Quarter Injury Frequency Rate (HSAC) for:

Industry	7.84
This Operation	1.45
Training Program Approved	Yes
Mine Profile Rating	663

Authority - This report is based on an investigation made pursuant to the Federal Mine Safety and Health Act of 1977 (Public Law 91-173, as amended by Public Law 95-164)

Abstract

On Friday, December 8, 1978, at approximately 9:35 p.m., a bump accident which occurred in the No. 15 pillar block on the 3 north section of the Olga Mine, Olga Coal Company, resulted in serious injury and subsequent death (death occurred December 16, 1978) to Clifford L. Perkins who was operating a continuous mining machine at the time of the accident. Perkins had 12 years mining experience, including 2 years as a continuous miner helper. The accident occurred when mining practices and procedures allowed pillar lines to intersect at right angles and allowed large pillars, which resisted crushing, to stand adjacent to such pillar lines. This caused abnormal pressure on the pillars by the strong massive sandstone roof and floor.

Information for this report was compiled through a MSHA investigation that was started December 9, 1978

Company Officials:

	Name	Address
President	White Bourland	420 South Washington Road McMurray, Pennsylvania 15317
Superintendent	Dwight Strong	Coalwood, West Virginia 24824
Safety Director	Charles Smallwood	Coalwood, West Virginia 24824
Principle officer - H&S	Charles Smallwood	Coalwood, West Virginia 24824
Labor Organization	UMWA, District 29	P. O. Box 511 Beckley, West Virginia 25801
Chairman - H&S Committee	Leonard Sparks	English, West Virginia 24832

Commentary

On Friday, December 8, 1978, at approximately 3:30 p.m., the 3 north section crew, under the supervision of Andy Christian, entered the mine and traveled to the active working areas of the section. Upon arrival on the section, about 4 p.m., according to Christian, he examined the faces and then gave the crew members work instructions.

According to William Cassady, continuous mining machine operator, at the beginning of the shift the continuous miner required repairs which were not completed until approximately 6 p.m. Cassady stated that after completion of the repairs, mining operations were begun in the No. 15 pillar (See Sketch) about 6:30 p.m., and continued until 8 p.m., at which time, normal operations were interrupted because of a derailment at the track-loading station.

Meanwhile according to Cassady, as the shift continued, the first cut was completed in the No. 15 pillar and the roof was bolted while he and Perkins (victim) ate dinner. Thereafter, according to Cassady at approximately 9 p.m. when the track repairs had been completed, the second cut was started in the No. 15 pillar split. Cassady explained that he loaded two shuttle cars of coal from the second cut and then Perkins started operating the continuous miner. Shortly thereafter, according to Cassady, as Perkins was loading his second shuttle car of coal (the fourth shuttle car from the cut), the bump occurred. Cassady stated that when the bump occurred he was standing beside Russell Franklin, who was seated in the deck of the shuttle car.

According to Cassady, the bump knocked him to the mine floor and the forces from the bump filled the air with dust. Cassady explained that when he regained his balance, he noticed that Christian, section foreman, had arrived on the scene and was checking Perkins, who was trapped in the operator's compartment of the continuous miner. Also, according to Cassady, Franklin had been injured and was leaning out of the deck of the shuttle car.

Meanwhile, several of the crew members arrived at the scene and according to Christian, both Perkins and Franklin were given first-aid treatment and transported from the mine. Franklin was taken to the Stevens Clinic in Welch, West Virginia, where he was treated for bruised ribs and kept overnight for observation. Because of the seriousness of his injuries, Perkins was transported to the Bluefield Community Hospital in Bluefield, West Virginia, where he died on December 16, 1978, as a result of the accident.

Discussion and Evaluation

The investigation of the accident revealed the following:

1. The bump occurred in pillar No. 15 (See Sketch) that was approximately 82' x 67' x 5' in size. Forces from the bump scattered very

little coal around the periphery of the pillar. At the particular time of the bump, a split was being advanced through the pillar with a continuous mining machine. The split had been advanced to a depth of about 15 feet when the bump occurred. The width of the split was 20 feet. According to mine management, the pillar was being split to reduce its size and thereby reduce the bump potential. However, observations at the accident scene revealed that there was a pillar inby No. 15 pillar that was inaccessible because of the heaved mine floor and a split through pillar No. 15 would have provided access to the inby pillar.

2. Further observation in the accident area revealed that pillar No. 15 (bump pillar) was located at the junction of two pillar lines that intersected at right angles (See Sketch). The mining practices and procedures in the section had allowed pillar No. 15 to remain full size until the adjacent pillar lines had approached the immediate area of pillar No. 15 before mine management started to reduce the pillar size. This practice of splitting pillars in close proximity to a pillar line results in abnormal pressures and subsequent bumps when the coalbed is between a strong roof and floor, such as was the case in particular. Examination of the mine map with regard to the elevations in the area indicated there was approximately 1,485 feet of earth cover, with 200 plus feet of massive sandstone roof directly over the coalbed. Furthermore, the mine floor was composed of shale which averaged 2 feet in thickness, underlain by massive sandstone of an undetermined thickness.

3. During the investigation, an examination of the roof and floor areas around pillar No. 15 revealed that both the roof and floor had broken. The floor contained a crack of sufficient width that a hammer handle could be inserted up to 24 inches into the crack. The cracks in the roof were profound, but the separation of the strata was not as great as in the mine floor. The evidence in the area indicated that the bump was a "shock-type bump".

4. Forces from the bump extensively damaged the continuous mining machine. The curved frame at the rear of the operator's compartment was displaced 11 inches (See Photograph) when the energy released at the coal face forced the continuous miner backward against a shuttle car located under the miner boom. The collision between the miner and the shuttle car literally collapsed the operator's compartment, crushing Perkins (victim) who was operating the miner at the time of the accident. Also, one of the cutting heads was torn off the miner by the bump forces. There was no visible damage to the shuttle car in the accident.

5. Officials at the Seismological Observatory, Virginia Polytechnic Institute, Blacksburg, Virginia, indicated that the bump did not register on the Richter scale.

Findings of Fact

A 107(a) Imminent Danger Withdrawal Order was issued because the mining practices on the section contributed to bumps.

Conclusion

The mining practices and procedures on the 3 north section allowed pillar lines to intersect at right angles and large pillars, which resisted crushing, to stand adjacent to such pillar lines. This caused abnormal pressure on the pillars by the strong massive sandstone roof and floor.

Aubrey T. Castanon

Aubrey T. Castanon

Approved by:

District Manager

Subdistrict Manager

APPENDIX

List of persons furnishing information and/or present during the investigation:

Olga Coal Company Officials

Dwight Strong	Superintendent
Jon Pavlovich	Assistant Superintendent
Charles Smallwood	Safety Director
Andy Christian	Section Foreman

Olga Coal Company Employees

William F. Cassady	Continuous Mining Machine Operator
Leonard Layne	Continuous Mining Machine Operator

Representatives of Miners
United Mine Workers of America

Charles Hinkle	Safety Inspector
Leonard Sparks	Safety Committee
Pete Belcher	Safety Committee
Elija Oakes	Safety Committee

West Virginia Department of Mines

Clifford Mitchem	Roof Control Inspector
Joe Heizer	Coal Mine Inspector
Carl Rutledge	Assistant Inspector-at-Large

Mine Safety and Health Administration

Carl Shaffer	Coal Mine Inspection Supervisor
Conrad T. Spangler, Jr.	Subdistrict Manager
Sylvester Gaspersich	Coal Mine Safety Specialist
Aubrey T. Castanon	Coal Mine Inspector

Data Sheet

Victim Data:

Name Clifford Perkins Sex Male SSN 234-74-7895

Age 34 Job Classification Continuous Miner Helper Experience at this Classification 2 years Total Mining Experience 12 years

What activity was being performed at time of accident? Miner Operator

Victim's experience at this activity 2 years Was victim trained this task? Yes

Health and Safety Courses/Training Received (Related to Accident)	Date Receive
Roof and Rib Control	10/25/78
Brief on Roof Control Plan	5/8/78
Roof Control Plan	5/1 & 6/5/78
Roof Control Plan, Part 4 to 14	10/30/78

Supervisor Data: (Supervisor of Victim)

Name Andy Christian Certified: Yes X No

Experience as Supervisor 2 years 4 months Total Mining Experience 5 years 7 month

Health and Safety Courses/Training Received (Related to Accident)	Date Receiv
Roof and Rib Control	1/26/78
Part 75	8/11/78

When was the supervisor last present at accident scene prior to accident? 9:25 P.M.

What did he do when he was there? Examined working place

When was he last in contact with victim? 9:25 P.M.

Did he issue instructions relative to the accident? No

Was he aware of or did he express an awareness of any unsafe practice or condition? No

Special Data Sheet

Information required in electrical accident reports:

Voltage of circuit involved.....
Voltage of which victim was exposed.....
Type of supply circuitry (trolley wire, portable rectifier, wye connected secondary, delta connected secondary).....
.....
Type, size and insulation rating of conductor involved.....
.....
Electrical protection for circuit.....
.....
Ground fault trip value (3 phase only).....
Wiring diagram of circuit involved. (Attach separate drawing)
Condition of mine floor.....
.....
Was victim wearing rubber boots?..... Leather boots..... Condition of boots.
.....
Was victim wearing gloves?..... Type..... Condition.....
.....
Type of frame grounding for equipment.....
.....

Information required in accidents involving equipment:

Name of manufacturer of machine involved. Lee-Norse.....
.....
Model, approval number, and type of machine. 33 L.N., Continuous mining machine.....
.....
Machine voltage. 300 d.c.....
Did design of machine contribute to accident? No.....
Did maintenance deficiencies contribute to accident. Yes.....
Name of official responsible for maintenance of equipment. Nick Ramsey.....
Experience of operator. 12 years.....
Was machine being operated within safe limits of its capacity? Yes.....
.....

Remarks: The frame of the machine was made of 1/2-inch material, including the rear portion of the deck. It was apparent the deck had been damaged prior to this accident and a poor repair job had been done.
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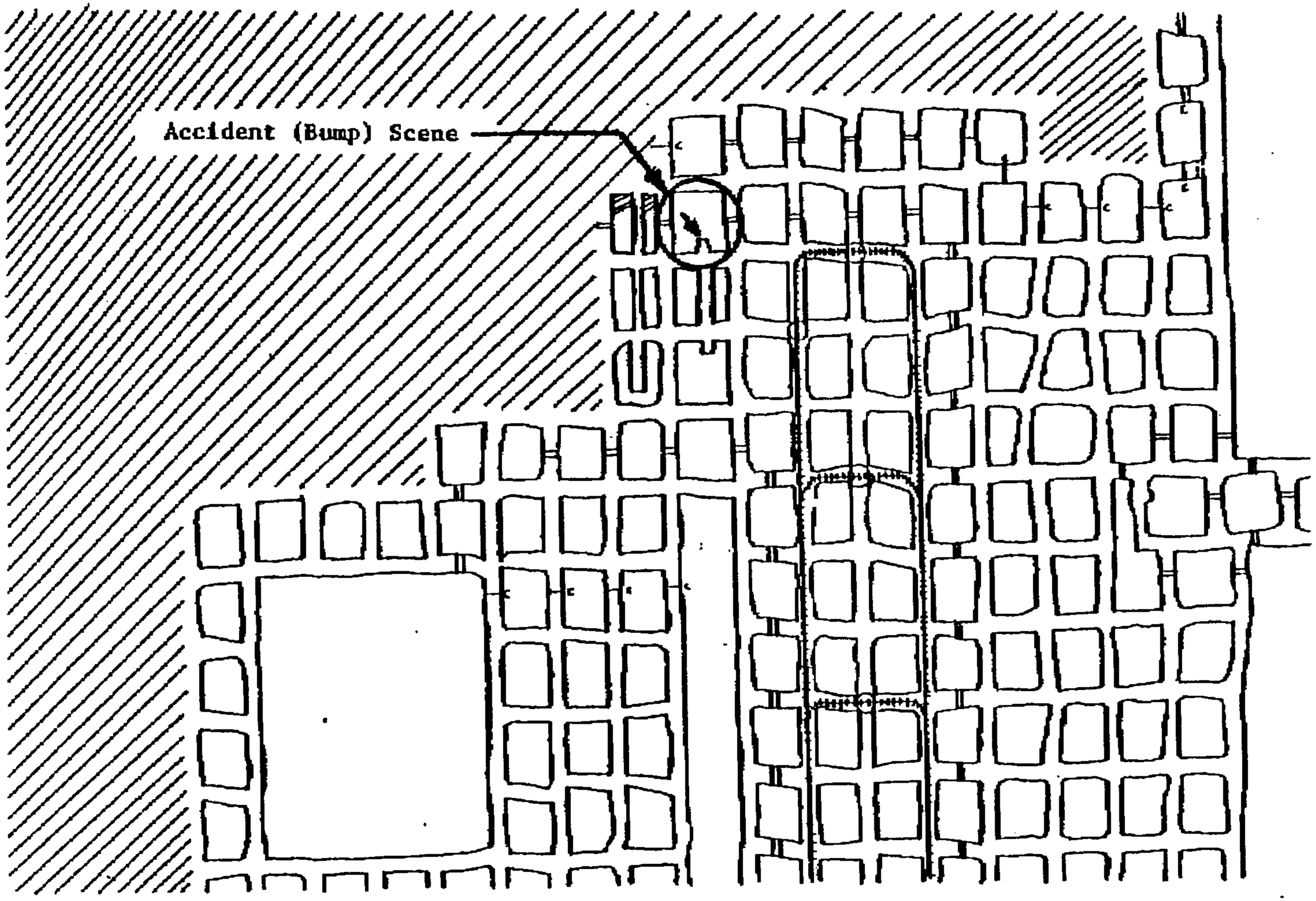

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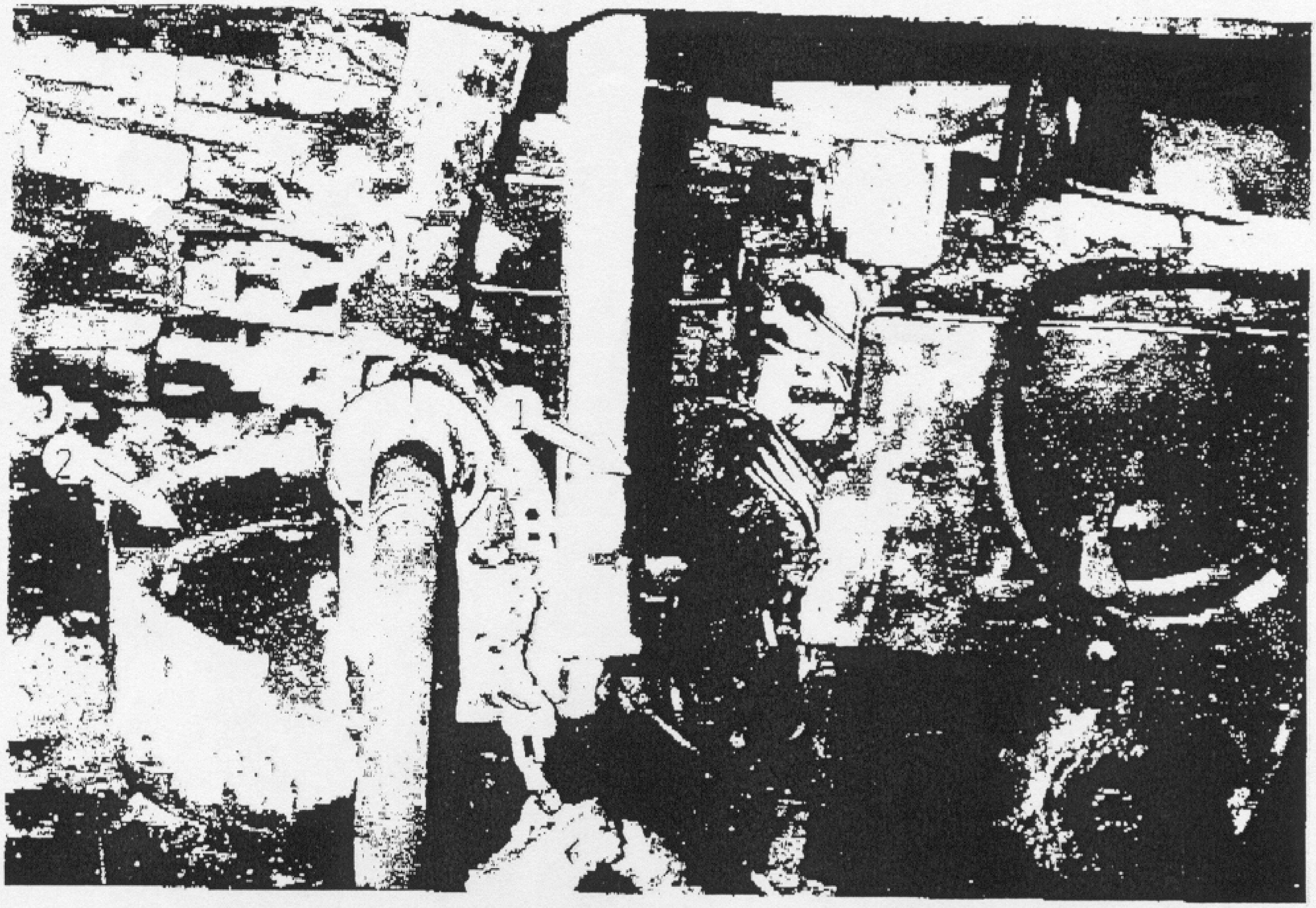
Olga Coal Company
Coalwood, McDowell County, West Virginia

December 8, 1979



Legend:

1. Perkins (victim) was crushed when the bump displaced the coal face and forced the continuous miner backward against a shuttle car collapsing the operator's compartment of the miner.

2. The curved section of the operator's compartment was displaced approximately 11 inches in the collision.

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December 8, 1979

FATAL ACCIDENT NUMBER 29

December 8, 1978 - Date of Accident

December 16, 1978 - Date of Death

Olga Mine — McDowell County

OLGA COAL COMPANY

A mountain bump accident occurred in the No. 15 pillar split, 3 North Main Section about 9:35 P.M., Friday, December 8, 1978, to Clifford Perkins, miner helper, resulting in his death eight days later, Saturday, December 16, 1978, at 9:00 P.M. Perkins, age 34, had eleven years and five months mining experience, eight years and three months with this company. He is survived by his widow, Mrs. Nancy Perkins, and three dependent children who reside at Warriormine, West Virginia.

On the day of the accident, the second shift crew entered the mine at 4:00 P.M., under the supervision of Andrew Christian, Section Foreman. After arriving on the section, Christian examined the working face and found no unsatisfactory conditions. The No. 33 Lee Norse miner had to be repaired. After completing the repairs, the miner was trammed to the No. 15 pillar split whereby the loose bottom had to be loaded up across the intersection. Afterwards, the miner was taken into the face of the split and advanced by mining approximately ten feet into the split. There was a delay due to the wrecked car, so the miner was removed to allow the roof bolt crew to install three rows of bolts. After restoring the wrecked cars on the track, Cassidy, the miner operator, and Perkins, the miner helper and the victim, moved the miner back into the split and loaded four shuttle cars of coal. Cassidy asked Perkins if he wanted to load a few cars. While loading the second shuttle car, a mountain bump occurred. Due to the force of the bump, the miner was thrown back about five and a half feet into the No. 21 SC shuttle car which was behind the miner. Also, the force tore off part of the cutting head. Due to the miner being knocked against the shuttle car, the back bumper was broken off and pushed the deck of the miner forward about eleven inches. This broke and sheared the legs of the canopy and twisted it. The miner helper, Clifford Perkins, was jammed between the operator controls and the deck. Perkins sustained fractures to the left arm and ankle, a fracture to the left side of the skull, and brain stem injury. Russel Franklin, shuttle car operator, was slightly injured. First aid was administered and the men were taken to the surface. Clifford Perkins was transported to the Bluefield Community Hospital in serious condition. The victim was unconscious until he expired at 9:30 P.M., Saturday, December 16, 1978. Russel Franklin was treated and released from the Stevens Clinic Hospital.

"CAUSE OF ACCIDENT"

Due to the heavy overburden and the undetermined thickness of the sandstone overlaying the standing pillar blocks that created excessive pressure and during the mining of coal, the pressure was released causing the bump. The hanging of the sandstone roof in the pillar area was also a contributing factor.

"REQUIREMENTS"

1. Due to different sizes of existing pillar blocks, the roof control plan shall be revised to eliminate extracting too large of pillar wings.

CLASSIFICATION OF COAL MINE FATALITIES BY DIVISION

JANUARY thru DECEMBER, 1978

DIVISION	UNDERGROUND MINES												SURFACE MINES		CONSTRUCTION	TOTALS
	FALLS OF ROOF OR COAL		Haulage	Electricity	Machinery	Surface	Explosives	Coal Bump	Fires	Explosions	Hoisting	Other Causes				
	At The Face	Not At Face														
Northern		2	1	1	1										1	6
New River & Winding Gulf	2	1	1									1		1		6
Pocahontas		1*								1		1***				3
Logan	4		1	2	1										1	9
Kanawha	1		2									1		1**		5
TOTALS	7	4	5	3	2					1		3		2	2	29

* Rib Roll
** Surface - Haulage
*** Mountain Bump

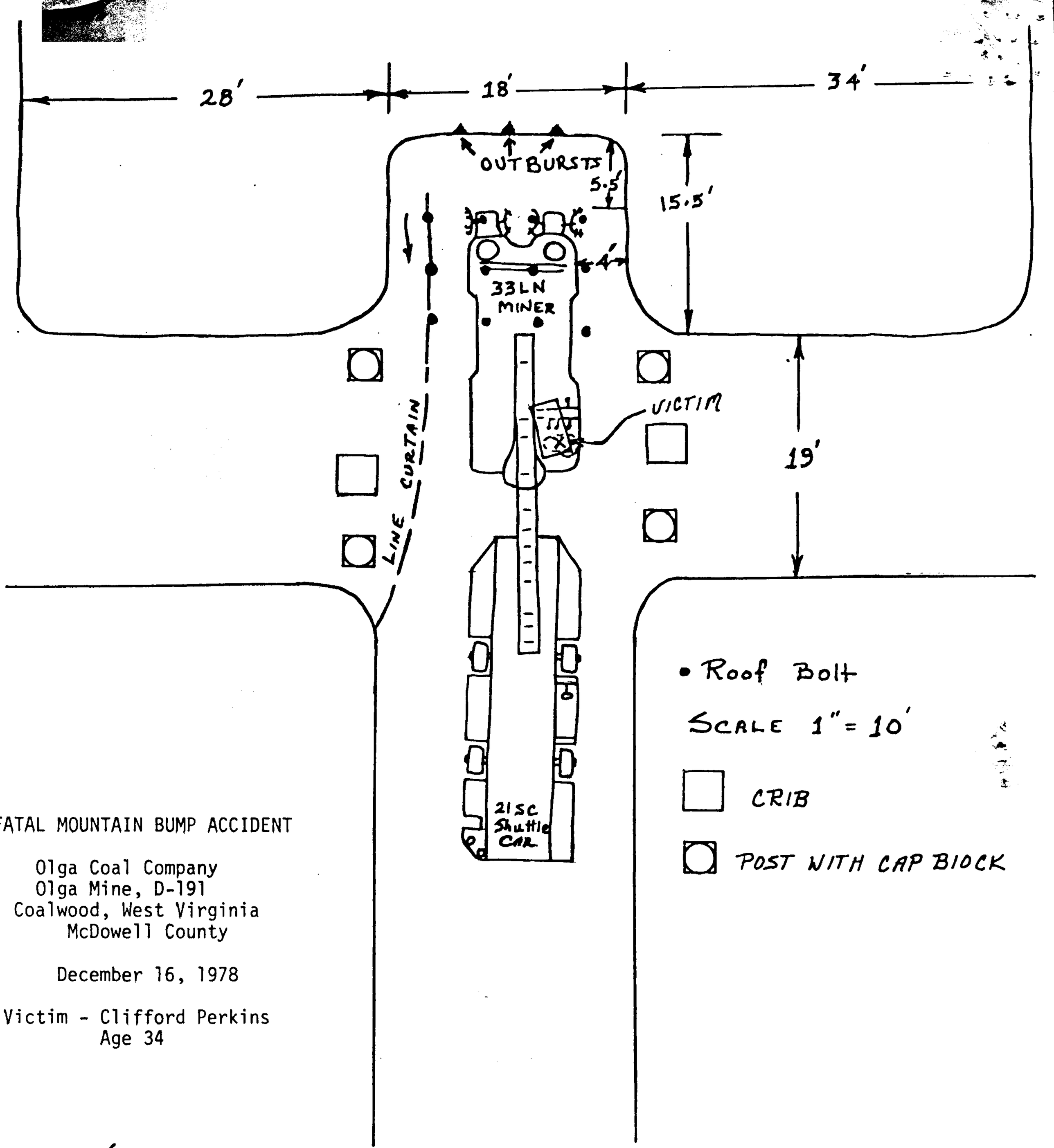
DIVISION	YEAR TO DATE 1977		DECEMBER 1978		YEAR TO DATE 1978	
	UNDERGROUND	SURFACE	UNDERGROUND	SURFACE	UNDERGROUND	SURFACE
Northern	6	1	0	0	6	0
New River & Winding Gulf	3	0	0	0	5	1
Pocahontas	9	0	1	0	3	0
Logan	7	0	0	0	9	0
Kanawha	2	0	0	0	4	1
Sub-Totals	27	1	1	0	27	2
TOTALS	28		1		29	

2. Every effort should be taken to provide a remote control system on the miners and whenever pillars are being extracted in the over-stressed coal pillars within the abutment zones of the extraction lines.

3. In pillar recovery under hard massive roof which resists caving, every precaution should be taken to extract the coal pillars in a manner that will permit, insofar as practicable, orderly distrubution of stresses.

4. Further mining projection should eliminate, insofar as possible, the number of vulnerable pillar lines points the area (pillar projecting into the gob area).

5. Whenever a "bump" occurs on any section, even if no injuries are present, the management shall notify the Department of Mines.



FATAL MOUNTAIN BUMP ACCIDENT

Olga Coal Company
Olga Mine, D-191
Coalwood, West Virginia
McDowell County

December 16, 1978

Victim - Clifford Perkins
Age 34

SKETCH SHOWING WHERE CLIFFORD PERKINS WAS SERIOUSLY INJURED DEC 8th 1978 9:30 P.M. OLGA MINE; OLGA COAL COMPANY.